

ORIGINAL ARTICLE

Translation, culture adaption and psychometric testing of the MISSCARE Survey—Swedish version

Carolin Nymark RN, PhD, Director of Nursing Development^{1,2}  |
Katarina E. Göransson RN, Ass. Professor^{3,4} | Fredrik Saboonchi PhD, Professor^{5,6} |
Ann-Charlotte Falk RN, Ass. Professor⁷ | Ann-Christin von Vogelsang RN, CNOR, PhD,
Director of Nursing Development^{2,8} 

¹Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden

²Heart, Vascular and Neuro Theme, Karolinska University Hospital, Stockholm, Sweden

³Department of Medicine, Karolinska Institutet, Solna, Stockholm, Sweden

⁴Emergency and Reparative Medicine Theme, Karolinska University Hospital, Stockholm, Sweden

⁵Department of Health Sciences, The Swedish Red Cross University College, Stockholm, Sweden

⁶Division of Insurance Medicine, Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden

⁷Department for Health Promoting Science, Sophiahemmet University, Stockholm, Sweden

⁸Division of Neuro, Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden

Correspondence

Carolin Nymark, Heart, Vascular and Neuro Theme, Karolinska University Hospital, Norrbacka S3:00, SE-171 76 Stockholm, Sweden.

Email: carolin.nymark@ki.se

Abstract

Aim: To translate the *MISSCARE Survey* into Swedish and establish its validity and reliability by evaluating its psychometric properties.

Background: Missed nursing care is defined as any aspect of required nursing care that is omitted or delayed. The consequence of missed nursing care is a threat to patient safety. The *MISSCARE Survey* is an American instrument measuring missed nursing care activities (part A) and its reasons (part B).

Methods: The translation was accomplished according to World Health Organization guidelines, focusing on a culture adaptation. Acceptability, construct validity, test-retest reliability and internal consistency were analysed. The Revised Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0) was used as reporting checklist.

Results: The translation and culture adaptation needed several revisions. A total of 126 nurses answered the test and retest which showed acceptability of missing data. The factor analysis revealed a lack of fit to data for the original factorial structure in part B, while further analysis provided results suggesting a modification based on omitting six items. The internal consistency for part B and its subscales showed good results.

Conclusions: The *MISSCARE Survey*—Swedish version is a reliable and valid instrument, with good psychometric properties.

Relevance to clinical practice: More reliable language versions of the instrument enable national and international comparisons that could be valuable for nursing managers and/or directors of nursing who are responsible for quality of care and patient safety in the strategic care planning process.

KEYWORDS

nursing, patient safety, psychometrics, quality and safety, quality of care, questionnaire, research in practice, survey, team nursing

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2020 The Authors. *Journal of Clinical Nursing* published by John Wiley & Sons Ltd

1 | INTRODUCTION

Missed nursing care (MNC), also referred to as “care left undone,” is defined as any aspect of required nursing care that is omitted (in part or in whole) or delayed (Kalisch et al., 2009). The consequence of MNC is threats to patient safety. The most frequently found reasons for MNC are lack of staff or material resources, or insufficient communication (Kalisch et al., 2009). Errors can be caused by an act of commission (doing something wrong) or an act of omission (failing to do something properly) and can lead to an adverse outcome for the patient (Kalisch & Xie, 2014). International studies report that MNC is associated with higher 30-day mortality, higher in-hospital mortality, lower assessed quality of life and other negative outcomes such as falls, increased occurrence of pneumonia, urinary infections, sepsis, errors in medical management and an increasing number of pressure ulcers and nosocomial infections (Ausserhofer et al., 2013; Ball et al., 2014, 2018; Kalisch et al., 2012; Schubert et al., 2008, 2012).

2 | BACKGROUND

Sweden has the lowest number of in-hospital beds per capita in Europe, even though it has a growing population with complex healthcare needs (The National Board of Health & Welfare, 2020). From a patient safety perspective, international studies show that insufficient competence among healthcare personnel or underemployment of nurses is a serious problem that causes complications. The results of a study by Needleman et al. (2011) show a significant association between increased mortality in patients where the number of registered nurses (RNs) is below the estimated target level (Needleman et al., 2011), while Aiken et al. (2014) reported that a higher skill level (bachelor's degree) results in fewer health injuries (Aiken et al., 2014).

Studies have reported a correlation between RNs being responsible for a high number of patients and an impaired patient outcome and even increased patient mortality (Lankshear et al., 2005), and if the patient–nurse ratio increases by one patient (over the ratio 6:1), the mortality increases by 7% (Aiken et al., 2014). The results also show that is associated with increased mortality (Ball et al., 2014). Moreover, to increase the number of less educated personnel, for example nurse assistants (NA), do not affect or reduce mortality as this seems to be tightly connected to the number of patients per RN (Ball et al., 2014, 2016; Griffiths et al., 2018).

Three questionnaires have been used internationally to measure MNC: “Care left undone” (Ball et al., 2014) “BERNCA” (Schubert et al., 2007) and “MISSCARE Survey” (Kalisch & Williams, 2009). Despite the extensive international research about MNC and its outcomes, the research on MNC in Swedish hospital and emergency settings is limited. When reviewing the existing instruments measuring MNC, the *MISSCARE Survey* was chosen due to the following advantages: the instrument has been psychometrically tested, it contains a wide range of questions about MNC, and in addition, it elaborates the reasons for MNC (Kalisch & Williams, 2009). Moreover, the

What does this paper contribute to the wider global clinical community?

- The *MISSCARE Survey—Swedish version* showed good psychometric properties
- The instrument may be valuable in the strategic care planning process
- and more available language versions of the instrument enable international comparisons
- There is a need for national/international comparisons to improve patient safety

instrument has been translated into other languages and contexts (Bragadottir et al., 2015; Kalisch et al., 2012; Siqueira et al., 2017; Sist et al., 2017), which enables international comparisons.

The *MISSCARE Survey* was developed in the United States through a process that involved both qualitative and quantitative methods (Kalisch & Williams, 2009). The questionnaire has one initial part with background questions, about, for example, age, gender, highest educational level, professional role, highest educational degree for RNs, experience in role, experiences in current unit, and unit type. In the section about MNC, there are two parts. Part A comprises 24 questions on nursing care activities which are answered on a 5-point Likert scale ranging from “always missed” to “never missed.” Part B contains 17 questions about reasons for MNC which are answered on a 4-point Likert scale ranging from “significant reason” to “NOT a reason for missed nursing care.” The original factor analysis for these items resulted in a three-factor solution: “communication,” “labour resources” and “material resources.” Previous research has assessed the psychometric properties of the *MISSCARE Survey* across countries and in diverse settings and contexts (Bragadottir et al., 2015; Kalisch et al., 2013; Kalisch, et al., 2012; Siqueira et al., 2017; Sist et al., 2017; Willis et al., 2017). The internal consistency and Cronbach's alpha values have been found acceptable, and the construct validity for part B measured by confirmatory factor analysis (CFA) generally confirms a satisfactory model fit.

All in all, an instrument that measures healthcare professionals' (RNs' and NAs') perceptions regarding MNC in a Swedish context would be valuable to identify and comprehend areas that need development, not least for nursing managers that are responsible for quality of care and patient safety. Therefore, the aim of the present study was to establish the validity and reliability of the translated version of the *MISSCARE Survey* in Swedish by evaluating its psychometric properties.

3 | METHODS

The Revised Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0) directed the presentation of the results. See Appendix S1.

3.1 | Procedure of the translation and adaptation process

The translation of the *MISSCARE Survey—Swedish version* was accomplished according to World Health Organization (WHO) guidelines (World Health Organization, 2020) including forward translation, expert panel back-translation, cognitive interviewing, pretesting and final version.

3.2 | The translation and adaptation process

The research group (CN, KG, AF, AvV), all RNs, PhDs and hold positions as directors of nursing development, conducted the translation and adaptation process and are experts in nursing and have experience in instrument development and translation. The forward translation was performed within the research group, who were all knowledgeable about English-speaking culture but had Swedish as their primary language. This process was carried out until consensus was reached within the group.

The expert panel consisted of five other RNs at the hospital who had the same position as the members of the research group. The expert panel was contacted and met when there was a need to identify and resolve inadequate expressions/concepts in the translation, and other discrepancies. Nearly all in the panel members had a PhD, and some also had experience in instrument development and translation. The expert panel was contacted throughout the whole translation and adaptation process, when needed. Moreover, when consensus within the research group was reached, the forward translation was sent to a professional translator who translated the Swedish version back into English.

To validate the back-translation with the original version, five RNs with clinical expertise were contacted; one of them was a Swedish native with good knowledge of English, and the rest were English native speakers with Swedish as their second language, and their academic degrees varied between bachelor and PhD. The RNs were asked to rate the items one by one and indicate if they perceived the translation as “exactly the same meaning (content and wording were the same),” or “almost the same meaning (content was the same with different wording),” or “different meaning (content and wording were not the same).” The cognitive interviewing was conducted by the first author. Three RNs and two NAs who worked clinically with patients were selected and asked to take part in this individual interview. The participants read the items one by one and were then told to say out loud if there was anything that was not clear about the questions or that they did not understand. As the last step, a consensus within the research group was obtained after scrutinising the rating of the back-translation together with the results from the cognitive interviewing. Seven questions in both part A and part B were slightly changed due to the content and/or context, and a final version for the pilot testing was obtained. This translation and adaptation process took about 16 months.

3.3 | Pilot testing and participants

RNs and NAs at a large university hospital in Sweden were asked to answer the pilot version of the *MISSCARE Survey—Swedish version* on two occasions within two weeks as a test and retest between October–December 2019. The questionnaire was given as a web survey sent to each participant's work email address.

3.4 | Statistical analysis

Acceptability, indicating ease of use (Waltz et al., 2010), was evaluated for both parts A and B of the *MISSCARE Survey—Swedish version*, measured by frequency of missing data.

A confirmatory factor analysis (CFA) with maximum likelihood estimation and robust standard errors (MLR) was performed to examine the fitness of the original factorial structure in part B. The fit of this model was assessed by a combination of fit indices: the Satorra–Bentler scaled chi-square test statistics, Comparative Fit Index (CFI), root mean squared error of approximation (RMSEA), and standardised root mean square residual (SRMR). Cut-off values of 0.95 for CFI, 0.08 for SRMR, and 0.06 for RMSEA and non-significant chi-square statistics indicated fit of the model to data (Hu & Bentler, 1999). Justification for modifications to the model was approached first by examining Modification Indices (MI). If the results indicated a need for extensive model re-specifications (i.e. too many model modifications), exploratory factor analysis (EFA) with Geomin rotation within the framework of exploratory structural equation modelling (ESEM) was used, as recommended by Asparouhov and Muthén (2009) to examine the factorial structure of Part B. Test–retest reliability was checked to evaluate the stability of item response over time, using the intraclass correlation coefficient (ICC) with confident intervals (CI) of 95%. Cronbach's alpha coefficient was calculated to determine the internal consistency for part B and for the subscales in part B. The statistical software used was IBM SPSS Statistics version 25 (IBM, US, 2017). For the CFA and EFA, Mplus V8.3 software was used.

3.5 | Ethical considerations

The study followed the principles outlined in the “Declaration of Helsinki; 1964” and its later amendments and was approved by the National Ethical Review Authority, reference number 2019-04080. Written information about the study was given as an introductory text to the web survey, where voluntariness was emphasised, and confidentiality guaranteed. By answering the questionnaire, the participants consented to participation. The web survey tool compiled a code list that only the administrators of the survey tool had access to. The researchers had access only to unidentified data.

TABLE 1 Characteristics of participants by EFA and test-retest

Characteristic	EFA (n = 248)	Test-retest (n = 126)
	n (%)	n (%)
Age (years)		
Median (IQR)	37 (29–48)	36 (29–48)
Range	20–64	20–64
Sex		
Male	48 (19.4)	26 (20.6)
Female	200 (80.6)	100 (79.4)
Unit type		
Emergency department	28 (11.3)	19 (15.1)
Intensive care	59 (23.8)	29 (23.0)
Heart and vascular	78 (31.5)	38 (30.2)
Medical short stay unit	31 (12.5)	20 (15.9)
Surgical short stay unit	10 (4.0)	4 (3.2)
Mixed medical–surgical short stay unit	42 (16.9)	20 (15.9)
Professional role		
Registered nurse	161 (64.9)	87 (69.0)
Nurse assistant	87 (35.1)	39 (31.0)
Highest academic degree for RNs		
Without academic degree	18 (10.8)	10 (11.5)
Bachelor	79 (44.6)	35 (40.2)
Master one-year	62 (35.0)	37 (42.5)
Master two-year	6 (3.4)	4 (4.6)
PhD	1 (0.6)	1 (1.1)
Experience in role		
≤6 months	7 (2.8)	3 (2.4)
6–24 months	21 (8.5)	7 (5.6)
2–5 years	52 (21.0)	30 (23.8)
6–10 years	53 (21.4)	28 (22.2)
>10 years	111 (44.8)	55 (43.7)
Missing	4 (1.6)	3 (2.4)
Experience at current unit		
≤6 months	26 (10.5)	16 (12.7)
6–24 months	58 (23.4)	23 (18.3)
2–5 years	78 (31.5)	38 (30.2)
6–10 years	41 (16.5)	24 (19.0)
>10 years	44 (17.7)	24 (19.0)
Missing	1 (0.4)	1 (0.8)

4 | RESULTS

4.1 | Participants

A total of 915 RNs and NAs at different units were invited to participate in the pilot test, that is the test–retest. Of the 248 RNs or NAs who answered the survey on the first occasion, 126 participated in

both the test and retest. The demographics are shown in Table 1.

4.2 | Acceptability, test-retest

4.2.1 | Part A

In the test, there were 113 missing items in total (0–11 missing answers per item), and in the retest, the total was 115 (4–9 missing answers per item).

4.2.2 | Part B

In the test, there were 134 missing items in total 134 (0–13 missing answers per item) and a total of 114 in the retest (4–11 missing answers per item).

4.3 | Confirmatory factor analysis

In the CFA, 248 RNs or NAs were included. The analysis outlined a three-factor model of the preliminary 17-item instrument with notably insufficient fit to the data by a highly significant Satorra–Bentler scaled chi-square ($S-B\chi^2 = 351.40$; $df = 116$ $p < .0001$) and CFI markedly lower than 0.95 (CFI = 0.798), an excessively high value of SRMR = 0.112, and RMSEA = 0.092 (90% CI = 0.081–0.10). Upon two iterative runs of re-specifications, the fit indices still failed to approximate adequate fit (chi-square ($S-B\chi^2 = 292.32$; $df = 114$ $p < .0001$, CFI = 0.847, SRMR = 0.105, and RMSEA = 0.07, 90% CI = 0.081–0.093), so EFA within ESEM was implemented as a follow-up analysis.

On the basis of four iterations of EFA within ESEM with Geomin rotation, five items were omitted as follows: “medications were not available when needed” (substantive significant cross-loadings), “inadequate hand-off from previous shift or sending unit” (low overall factor loading < 0.3 and significant cross-loadings), “caregiver off unit or unavailable,” “unbalanced patient assignments” and “heavy admission and discharge activity” (significant cross-loading). The results of the EFA on the remaining 12 items indicated evidence of fit of the model for both a four-factorial model and a three-factorial model. However, the four-factorial model contained a factor with no significant item-loadings and was, consequently, discarded. The three-factorial model showed a non-significant Satorra–Bentler scaled chi-square ($S-B\chi^2 = 42.96$; $df = 33$ $p = .11$), CFI = 0.988, SRMR = 0.028, and RMSEA = 0.036, 90% CI = 0.00–0.063. These fit indices indicated an excellent fit to data, so the three-factorial model was selected. The factorial loadings of the items are displayed in Table 2. The overall pattern of loadings indicated a similar distribution of items to the original model with the exception of the item “other departments did not provide the care needed (e.g. physical therapy did not ambulate).” However, due to that the factor “communication” was not interpretable when this item was included, all

TABLE 2 Factorial loadings for the 11 items in the exploratory factor analysis of part B, and selected items for each factor are indicated by loadings displayed in bold

Item	Labour resources	Material resources	Communication
Inadequate number of staff	0.734	-0.022	-0.005
Urgent patient situations (e.g. a patient's condition worsening)	0.530	0.087	-0.075
Unexpected rise in patient volume and/or acuity on the unit	0.742	-0.024	0.020
Inadequate number of assistive personnel (e.g. nursing assistants, techs etc.)	0.380	0.131	0.144
Supplies/equipment not available when needed	0.017	0.922	-0.019
Supplies/equipment not function properly	-0.005	0.726	0.114
Lack of back-up support from team members	0.004	0.142	0.831
Tension or communication breakdowns with other support departments	0.053	0.246	0.548
Tension or communication breakdowns within the nursing team	-0.013	0.013	0.938
Tension or communication breakdowns with the medical staff	-0.007	0.190	0.642
Nursing assistant did not communicate that care was not done	-0.012	0.079	0.727

proceeding reliability analyses were performed while excluding this item.

4.4 | Reliability

The test-retest reliability was completed with 126 participants who completed both the test and retest. The overall test-retest ICC for part A (24 items) was 0.907 with CI 95%, indicating a good reliability. The overall test-retest ICC coefficient for part B was based on the results of the CFA and EFA (i.e. 11 items were omitted) and was 0.514 with CI 95%, indicating a moderate reliability. The three subscales had an ICC coefficient ranging from 0.560–0.710 with CI 95% (Table 3).

4.5 | Internal consistency

The internal consistency was calculated with Cronbach's alpha, including the 248 participants. It was based on the results of the CFA and EFA, excluding six items. For the total scale of part B, Cronbach's alpha was 0.769. The three-factor Cronbach's alpha is given in Table 3 and indicates acceptable to good internal consistency.

5 | DISCUSSION

The present study describes the validity and reliability of the translated version of the *MISSCARE Survey* into Swedish by evaluating its psychometric properties. The internal consistency and construct validity were assessed, and the translation showed satisfactory psychometric properties.

5.1 | Translation and adaptation process

When translating and culturally adapting an instrument, it is of the utmost importance to be as close to the instrument in origin as possible. As the instrument was developed approximately 15 years ago and in the United States, there were difficulties in the translation and adaptation process in finding equivalent words, both in content and semantic terms, in Swedish. One problematic item was “unbalanced patient assignments,” where in the Swedish version the text “due to caring needs” was added. In a Swedish context, “caring needs” or “workload” is an important topic that is discussed daily among the nurses and within the nursing teams on the wards. To date, we have not had a valid and reliable instrument to determine the workload within the nursing teams. Therefore, to clarify that it is not just the number of patients that counts, but also the patient dependency, this text was added.

TABLE 3 Cronbach's alpha and intraclass correlation for test and retest, part B (n = 126)

Factor	Cronbach's α	Item	ICC test-retest		
			1	2	3
1. Labour resources	0.677	Inadequate number of staff	0.568		
		Unexpected rise in patient volume and/or acuity on the unit	0.487		
		Urgent patient situations (e.g. a patient's condition worsening)	0.325		
		Inadequate number of assistive personnel (e.g. nursing assistants, techs etc.)	0.286		
2. Material resources	0.827	Supplies/equipment not function properly		0.517	
		Supplies/equipment not available when needed		0.442	
3. Communication	0.879	Nursing assistant did not communicate that care was not done			0.389
		Tension or communication breakdowns with the medical staff			0.384
		Tension or communication breakdowns with other support departments			0.355
		Lack of back-up support from team members			0.348
		Tension or communication breakdowns within the nursing team			0.306

Another item that was culturally adapted was “nursing assistant did not communicate that care was not provided,” where in the Swedish version the words “nursing assistant” were changed to “nursing staff” as it is not just the NAs who do not communicate that care is not provided; sometimes, it is the other way around and we did not want to highlight this group especially. The items were clarified sorted out through email correspondence with the author of the original version, as well as the author of the Icelandic version, who worked in close collaboration with the original author. Also, there was a Skype conversation to discuss and clarify unclear aspects of the original. However, this process shows some of the difficulties and the need to culturally adapt items within the translating process to make them relevant in the context.

As well as in the translation of the *MISSCARE Survey* into Icelandic (Bragadottir et al., 2015), there were difficulties in finding an adequate term that captured the meaning of “missed nursing care” in a Swedish context as there is no equivalent term for “nursing care.” Also, there were discussions about the word “missed,” and whether the respondent should interpret the word as “missed,” “left out” or “omitted.” This required consultation with the expert panel as well as with RNs and NAs to capture the core meaning. As Hilton and Skrutkowski propose, field testing and refining the items and instrument with persons from the target culture are necessary to serve as a check for translation quality (Hilton & Skrutkowski, 2002).

5.2 | Internal construct validity

The CFA failed to show an adequate fit between the suggested *MISSCARE* model and the observed data in this study; that is, there was a failure to cross-validate part B of the *MISSCARE Survey*. The indicated lack of support for the initial multi-domain model in the CFA appears to be due to problematic content on item level; that is, several items did not adequately reflect the hypothesised latent domains, that is “communication,” “labour resources” and “material

resources.” As six items were finally removed, the overall pattern of loadings indicated a similar distribution of items to the original model. When scrutinising these items, one of the difficulties might have been due to the translation process; for example in Swedish, the word “caregiver” can be interpreted in several ways and thus needed to be clarified. Although individual items still provide important information, due to these findings, the mentioned issues need to be further settled in future studies in a Swedish context.

5.3 | Internal consistency

The internal consistency for part B, measured by the Cronbach's alpha, was found to be good in the test and retest. Moreover, the Cronbach's alpha for the domains in the test and retest indicated an acceptable to good internal consistency where the Cronbach's alpha for the domain “labour resources” was slightly beneath the recommended alpha value of 0.70 (Nunnally & Bernstein, 1994).

5.4 | Methodological considerations

A total of 915 RNs and NAs were asked to participate in the web survey. However, the response rate was low, since only 126 participated in the test and retest, representing 14% of the eligible nurses. Although there was written and oral information from both the responsible researchers and the heads of the units, we did not achieve an appropriate response rate. This may have been because the survey was received by the healthcare professionals through their inbox email, which they do not routinely check. Also, working three shifts and not being at the unit during the daytime in the week may have had some implications as well. However, the response rate was considered to be sufficient for the method and results of the current study.

To translate an instrument into another language and culturally adapt it to a new context is time-consuming and requires a great effort from both the researchers and the healthcare professionals who are asked to assist. Still, the researchers worked close to the guidelines and did not hesitate to probe into questions where the content and context needed further clarification, with assistance from both the strategic nursing council and other nurses.

A considerable number of items showed poor psychometric properties. This might be explained by difficulties with some words which needed to be adjusted to the Swedish context. Also, the items might be unclear and open to interpretation to the reader, especially when there are clarifications within the item, for example “other departments did not provide the care needed (e.g. physical therapy did not ambulate)” as the item may be interpreted in different ways.

Nevertheless, the *MISSCARE Survey—Swedish version* showed adequate psychometric properties, including good acceptability and internal construct validity when omitting items and applying a modified factor structure, as well as good internal consistency.

6 | CONCLUSION

In the current study, we found the *MISSCARE Survey—Swedish version* to be reliable and valid with good psychometric properties. Hence, the instrument is a suitable for assessing MNC in in-hospital settings in the Swedish context and the study adds to the body of scientific knowledge concerning the measurements of MNC, including the nurse–patient ratio and competence mix.

7 | RELEVANCE TO CLINICAL PRACTICE

More reliable language versions of the instrument enable national and international comparisons that could be valuable for nursing managers and/or directors of nursing who are responsible for quality of care and patient safety in the strategic care planning process.

ACKNOWLEDGEMENTS

The authors acknowledge the RNs and ANs that participated in the cognitive interviewing and in the pilot test of the questionnaire, as well as the colleagues in the Strategic Nursing Council who participated in the back-translation process. Also, we are very thankful to Professor Kalisch who let us use the *MISSCARE Survey*, and to Professor Bragadottir for helping us throughout the entire process with all the questions regarding the translation process.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

AUTHOR CONTRIBUTIONS

Translation and culture adaption of the instrument and initial statistics: CN, KG, LF and AvV; exploratory factor analysis and confirmatory

factor analysis and text in the results: FS; manuscript responsibility: CN and AvV; and manuscript preparation: CN, KG, LF and AvV.

ORCID

Carolyn Nyman  <https://orcid.org/0000-0003-0891-6358>

Ann-Christin von Vogelsang  <https://orcid.org/0000-0002-3006-2443>

REFERENCES

- Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., Griffiths, P., Busse, R., Diomidous, M., Kinnunen, J., Kozka, M., Lesaffre, E., McHugh, M. D., Moreno-Casbas, M. T., Rafferty, A. M., Schwendimann, R., Scott, P. A., Tishelman, C., van Achterberg, T., & Sermeus, W. (2014). Nurse staffing and education and hospital mortality in nine European countries: A retrospective observational study. *Lancet*, 383(9931), 1824–1830. [https://doi.org/10.1016/s0140-6736\(13\)62631-8](https://doi.org/10.1016/s0140-6736(13)62631-8)
- Asparouhov, T., & Muthén, B. (2009). Exploratory Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, 16(3), 397–438. <https://doi.org/10.1080/10705510903008204>
- Ausserhofer, D., Schubert, M., Desmedt, M., Blegen, M. A., De Geest, S., & Schwendimann, R. (2013). The association of patient safety climate and nurse-related organizational factors with selected patient outcomes: A cross-sectional survey. *International Journal of Nursing Studies*, 50(2), 240–252. <https://doi.org/10.1016/j.ijnurstu.2012.04.007>
- Ball, J. E., Bruyneel, L., Aiken, L. H., Sermeus, W., Sloane, D. M., Rafferty, A. M., Lindqvist, R., Tishelman, C., & Griffiths, P. (2018). Post-operative mortality, missed care and nurse staffing in nine countries: A cross-sectional study. *International Journal of Nursing Studies*, 78, 10–15. <https://doi.org/10.1016/j.ijnurstu.2017.08.004>
- Ball, J. E., Griffiths, P., Rafferty, A. M., Lindqvist, R., Murrells, T., & Tishelman, C. (2016). A cross-sectional study of 'care left undone' on nursing shifts in hospitals. *Journal of Advanced Nursing*, 72(9), 2086–2097. <https://doi.org/10.1111/jan.12976>
- Ball, J. E., Murrells, T., Rafferty, A. M., Morrow, E., & Griffiths, P. (2014). 'Care left undone' during nursing shifts: Associations with workload and perceived quality of care. *BMJ Qual Saf*, 23(2), 116–125. <https://doi.org/10.1136/bmjqs-2012-001767>
- Bragadottir, H., Kalisch, B. J., Smaradottir, S. B., & Jonsdottir, H. H. (2015). Translation and psychometric testing of the Icelandic version of the *MISSCARE Survey*. *Scandinavian Journal of Caring Sciences*, 29(3), 563–572. <https://doi.org/10.1111/scs.12150>
- Griffiths, P., Recio-Saucedo, A., Dall'Ora, C., Briggs, J., Maruotti, A., Meredith, P., Smith, G. B., & Ball, J. (2018). The association between nurse staffing and omissions in nursing care: A systematic review. *Journal of Advanced Nursing*, 74(7), 1474–1487. <https://doi.org/10.1111/jan.13564>
- Hilton, A., & Skrutkowski, M. (2002). Translating instruments into other languages: Development and testing processes. *Cancer Nursing*, 25(1), 1–7. <https://doi.org/10.1097/00002820-200202000-00001>
- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Kalisch, B. J., Doumit, M., Lee, K. H., & Zein, J. E. (2013). Missed nursing care, level of staffing, and job satisfaction: Lebanon versus the United States. *Journal of Nursing Administration*, 43(5), 274–279. <https://doi.org/10.1097/NNA.0b013e31828eebaa>
- Kalisch, B. J., Landstrom, G. L., & Hinshaw, A. S. (2009). Missed nursing care: A concept analysis. *Journal of Advanced Nursing*, 65(7), 1509–1517. <https://doi.org/10.1111/j.1365-2648.2009.05027.x>

- Kalisch, B. J., Terzioglu, F., & Duygulu, S. (2012). The MISSCARE Survey-Turkish: Psychometric properties and findings. *Nursing Economics*, 30(1), 29–37.
- Kalisch, B. J., Tschannen, D., & Lee, K. H. (2012). Missed nursing care, staffing, and patient falls. *Journal of Nursing Care Quality*, 27(1), 6–12. <https://doi.org/10.1097/NCQ.0b013e318225aa23>
- Kalisch, B. J., & Williams, R. A. (2009). Development and psychometric testing of a tool to measure missed nursing care. *Journal of Nursing Administration*, 39(5), 211–219. <https://doi.org/10.1097/NNA.0b013e3181a23cf5>
- Kalisch, B. J., & Xie, B. (2014). Errors of omission: Missed nursing care. *Western Journal of Nursing Research*, 36(7), 875–890. <https://doi.org/10.1177/0193945914531859>
- Lankshear, A. J., Sheldon, T. A., & Maynard, A. (2005). Nurse staffing and healthcare outcomes: A systematic review of the international research evidence. *Advances in Nursing Science*, 28(2), 163–174. <https://doi.org/10.1097/O0012272-200504000-00008>
- Needleman, J., Buerhaus, P., Pankratz, V. S., Leibson, C. L., Stevens, S. R., & Harris, M. (2011). Nurse Staffing and Inpatient Hospital Mortality. *New England Journal of Medicine*, 364(11), 1037–1045. <https://doi.org/10.1056/NEJMsa1001025>
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. McGraw-Hill.
- Schubert, M., Clarke, S. P., Aiken, L. H., & de Geest, S. (2012). Associations between rationing of nursing care and inpatient mortality in Swiss hospitals. *International Journal for Quality in Health Care*, 24(3), 230–238. <https://doi.org/10.1093/intqhc/mzs009>
- Schubert, M., Glass, T. R., Clarke, S. P., Aiken, L. H., Schaffert-Witvliet, B., Sloane, D. M., & De Geest, S. (2008). Rationing of nursing care and its relationship to patient outcomes: The Swiss extension of the International Hospital Outcomes Study. *International Journal for Quality in Health Care*, 20(4), 227–237. <https://doi.org/10.1093/intqhc/mzn017>
- Schubert, M., Glass, T. R., Clarke, S. P., Schaffert-Witvliet, B., & De Geest, S. (2007). Validation of the Basel Extent of Rationing of Nursing Care instrument. *Nursing Research*, 56(6), 416–424. <https://doi.org/10.1097/01.Nnr.0000299853.52429.62>
- Siqueira, L. D. C., Caliri, M. H. L., Haas, V. J., Kalisch, B., & Dantas, R. A. S. (2017). Validation of the MISSCARE-BRASIL survey - A tool to assess missed nursing care. *Rev Lat Am Enfermagem*, 25, e2975. <https://doi.org/10.1590/1518-8345.2354.2975>
- Sist, L., Contini, C., Bandini, A., Bandini, S., Massa, L., Zanin, R., Maricchio, R., Gianesini, G., Bassi, E., Tartaglino, D., Palese, A., & Ferraresi, A. (2017). MISSCARE Survey - Italian Version: Findings from an Italian validation study. *Ig Sanita Publications*, 73(1), 29–45.
- The National Board of Health and Welfare (2020). *Tillståndet och utvecklingen inom hälso- och sjukvård samt tandvård - Lägesrapport 2020 [Elektronisk resurs]*. Retrieved from <http://socialstyrelsen.se>
- Waltz, C., Strickland, O., & Lenz, E. (2010). *Measurements in nursing and health research* (4th ed.). Springer Publishing Company.
- Willis, E., Carryer, J., Harvey, C., Pearson, M., & Henderson, J. (2017). Austerity, new public management and missed nursing care in Australia and New Zealand. *Journal of Advanced Nursing*, 73(12), 3102–3110. <https://doi.org/10.1111/jan.13380>
- World Health Organization. (2020). *Process of translation and adaptation of instruments*. Retrieved from https://www.who.int/substance_abuse/research_tools/translation/en/

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

How to cite this article: Nymark C, Göransson KE, Saboonchi F, Falk A-C, von Vogelsang A-C. Translation, culture adaption and psychometric testing of the MISSCARE Survey—Swedish version. *J. Clin. Nurs.* 2020;29:4645–4652. <https://doi.org/10.1111/jocn.15505>